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other plants of various families. One notable plant of this character is a certain variety of *Hosackia Purshiana*, whose leaves turn eastward in the morning and westward in the afternoon. To facilitate this, all the branches and leaves grow toward the north and south, so that the leaves simply have to turn over. In the case of the *Silphium laciniatum*, where the two surfaces of the leaf are just about alike, the leaves do not turn one face upward, but stand vertical, with one face to the east and the other to the west, and with the edges north and south. Thus, the leaves, which are rigid, get the benefit of all the sunlight; and the plant only grows on an open prairie, in a sunshiny country.

AN IMPROVED FIRE-SCREEN; AND NOTES ON THE THERMAL RESISTANCE OF FIRE-SCREENS.

BY T. H. DINSMORE, EMPORIA.

[Abstract.]

This fire-guard is so constructed as to secure neatness of design and unusual security from fire. The subject of thermal resistance of fire-screens is reviewed, and it is shown that resistance varies directly with the distance from the fire, and inversely with the meshes of the guard.

METHODS OF COLLECTING, CLEANING AND MOUNTING DIATOMS.

BY GERTRUDE CROTTY, LAWRENCE.

The diatomaceæ, called by the writers of the early part of this century bacillariaceæ, are now generally considered to be unicellular microscopical algeæ. This classification is based upon their usual method of reproduction—that by fission or division. Several eminent scientists, however, as Dr. Farlow, of Harvard College, yet hold that, on account of their freedom of motion, they ought to be placed in the animal kingdom.

The first forms of this microscopical plant were discovered at the close of the last century by the celebrated Danish micrographer, O. F. Müller. There have now been described over ten thousand varieties. This number is enormous, considering the fact that American forms have been little studied. With the exception of the late Prof. H. L. Smith, America has not produced what Dr. Henri Van Heurck means by his term “diatomophile.” Owing to the fact that allowance has not been made for degeneration in size of any variety, due to division, it is very probable that this number has been unnecessarily increased.

Each individual diatom is incased within a silicious covering. This covering is composed of two halves, or valves, one fitting over the other as does a lid over a box. The point of union, the point where these two valves overlap one another, is termed the connective zone or girdle. These valves are marked by rows of punctures, or stria, except at the center, and frequently each end. The unstriated points are the nodules. These nodules are united by a line, the raphe, or median line. Each cell or plant contains a nucleus and nucleolus, protoplasm and a greenish-brown substance—the endochrome; likewise, several oily globules. Each plant is also covered by a mucilaginous coating, which may be detected by